



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| (51) International Patent Classification ⁶ : C12N 15/12, C07K 14/71, A61K 38/17, 39/00, G01N 33/50, 33/68, C12Q 1/68, C07K 16/28 | A1 | (11) International Publication Number: WO 99/43801 (43) International Publication Date: 2 September 1999 (02.09.99) |
| (21) International Application Number: PCT/GB99/00583 (22) International Filing Date: 26 February 1999 (26.02.99) (30) Priority Data: 9804121.3 26 February 1998 (26.02.98) GB (71) Applicant (for all designated States except US): CANCER RESEARCH CAMPAIGN TECHNOLOGY LIMITED [GB/GB]; Cambridge House, 6-10 Cambridge Terrace, Regent's Park, London NW1 4JL (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): DURRANT, Linda, Gillian [GB/GB]; CRC Technology Limited, Dept. of Clinical Oncology, University of Nottingham, City Hospital, Hucknall Road, Nottingham NG5 1PB (GB). SPENDLOVE, Ian [GB/GB]; CRC Technology Limited, Dept. of Clinical Oncology, University of Nottingham, City Hospital, Hucknall Road, Nottingham NG5 1PB (GB). HEWETT, Peter, William [GB/GB]; CRC Technology Limited, Dept. of Clinical Oncology, University of Nottingham, City Hospital, Hucknall Road, Nottingham NG5 1PB (GB). RAMAGE, Judith, Margaret [GB/GB]; CRC Technology Limited, Dept. of Clinical Oncology, | | University of Nottingham, City Hospital, Hucknall Road, Nottingham NG5 1PB (GB). (74) Agents: O'BRIEN, Caroline, J. et al.; Mewburn Ellis, York House, 23 Kingsway, London WC2B 6HP (GB). (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> |
| (54) Title: ANTI-ANGIOGENIC VACCINES: SUBSTANCES AND METHODS RELATING THERETO (57) Abstract <p>Short amino acid sequences which present epitopes of Tek protein can be used as cancer vaccines to direct an immune cell response to endothelial cells. The peptides and polypeptides bind to MHC molecules, and the presentation of Tek epitopes can stimulate helper and/or cytotoxic T cell responses. Nucleic acids encoding the peptides, antibodies directed against the peptides, and pharmaceutical compositions comprising the peptides are also provided.</p> | | |

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/00583

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/12 C07K14/71 A61K38/17 A61K39/00 G01N33/50
G01N33/68 C12Q1/68 C07K16/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K A61K G01N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-------------------------|
| X | WO 95 21866 A (LUDWIG INSTITUTE FOR CANCER RES (US); RUNTING AS; WILKS AF; STACKER SA) 17 August 1995 see page 21, line 18 - page 22, line 21 --- | 1-5, 12-30, 33-40 |
| X | WO 94 00469 A (IMMUNEX CORPORATION (US); ZIEGLER S.F.) 6 January 1994 see page 9, line 19-24 see page 26, line 4-37; example 4 Seq.ID:2 see page 34 - page 37 --- -/-- | 1-5, 12-30, 33-40 |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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"E" earlier document but published on or after the international filing date

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

25 June 1999

Date of mailing of the international search report

02/07/1999

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/00583

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|---|-------------------------|
| X | US 5 681 714 A (MOUNT SINAI HOSPITAL CORP (CA); BREITMAN; ROSSANT; DUMONT; YAMAGUCHI) 28 October 1997 see column 18, line 3-53 see column 23, line 44-67 see column 34, line 24-38 --- | 1-5, 12-30, 33-40 |
| X | WO 95 13387 A (MAX-PLANCK-GESELLSCHAFT ZUR FÖRDERUNG DER WISSENSCHAFTEN EV (DE) RISAU) 18 May 1995 see page 27, line 32 - page 29, line 33 --- | 1-5, 12-30, 33-40 |
| A | D'AMARO J. ET AL.: "A computer program for predicting possible cytotoxic T lymphocytes epitopes based on HLA class I peptide-binding motifs" HUMAN IMMUNOLOGY, vol. 43, no. 1, 1 May 1995, pages 13-18, XP002015451 see abstract --- | |
| A | DAVENPORT M.P. ET AL.: "An empirical method for the prediction of T-cell epitopes" IMMUNOGENETICS, vol. 42, no. 5, 1 January 1995, pages 392-397, XP002015224 see abstract --- | |
| A | WO 97 41440 A (UNIV LEIDEN; SEED CAPITAL INVESTMENTS (SCI) BV (NL) VAN DER BURG ET AL) 6 November 1997 see abstract --- | |
| A | RESSING M.E. ET AL.: "Immunotherapy of cancer by peptide-based vaccines for the induction of tumor-specific T cell immunity" IMMUNOTECHNOLOGY, vol. 2, no. 4, 1 November 1996, page 241-251 XP004063120 see abstract ----- | |

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 99/ 00583

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 41-43
are directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/00583

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| WO 9400469 A | 06-01-1994 | AU 4651893 A US 5447860 A | 24-01-1994 05-09-1995 |
| US 5681714 A | 28-10-1997 | CA 2085291 A | 31-01-1994 |
| WO 9513387 A | 18-05-1995 | AU 8143094 A | 29-05-1995 |
| WO 9741440 A | 06-11-1997 | AU 2410697 A EP 0900380 A | 19-11-1997 10-03-1999 |